ER Diagram for Messaging System

Group Name: **Super Five**

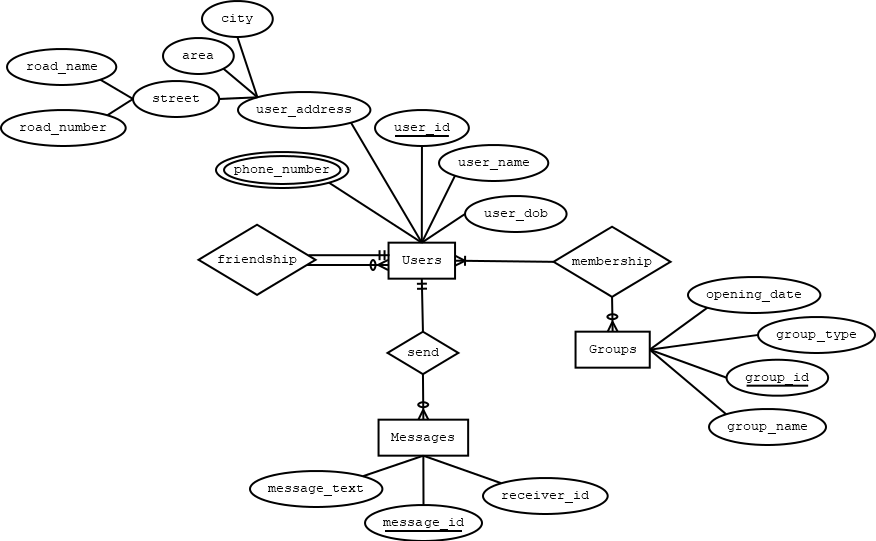
Group Members:

1. Rahman, Sheikh Talha Jubayer (19-41468-3)
2. Shifat, Mahabub Hasan (19-41460-3)
3. Khanom, Afrida (19-41444-3)
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**Case:**

In a Messaging System, a user may or may not have friendship with other users. One user can have zero to many friendships. User is identified by user id. System also stores user name, user date of birth, phone number and address. User can have multiple phone number. Users’ address is composed of city, area and street. Street is also composed of road number and road name. One user can be member of zero to many groups. One group is identified by group id. One group can be created by one or more members. Group has name and group type like entertainments, study and work. System also store group opening date. User can send zero to many messages. One message can be sent by exactly one user. One message is identified by message id. Message has the text and receiver id which is the user id who received this message.

**ER Diagram:**



**Normalization:**

**Friendship:**

UNF: 1st: user\_id, user\_name, user\_dob, road\_name, road\_number, area, city, phone\_number, friend\_id

1NF: 1st: user\_id, phone\_number, friend\_id, user\_name, user\_dob, road\_name, road\_number, area, city

2NF: 1st: user\_id, phone\_number

2nd: user\_id, user\_name, user\_dob, road\_name, road\_number, area, city

3rd: user\_id, friend\_id

3NF: 1st: user\_id, phone\_number

2nd: user\_id, user\_name, user\_dob, road\_number

3rd: road\_number, road\_name, area, city

4th: user\_id, friend\_id

**Send:**

UNF: 1st: user\_id, user\_name, user\_dob, road\_name, road\_number, area, city, phone\_number, message\_id, message\_text, receiver\_id

1NF: 1st: user\_id, phone\_number, message\_id, user\_name, user\_dob, road\_name, road\_number, area, city, message\_text, receiver\_id

2NF: 1st: user\_id, phone\_number

2nd: user\_id, user\_name, user\_dob, road\_name, road\_number, area, city

3rd: user\_id, message\_id

4th: message\_id, message\_text, receiver\_id

3NF: 1st: user\_id, phone\_number

2nd: user\_id, user\_name, user\_dob, road\_number

3rd: road\_number, road\_name, area, city

4th: user\_id, message\_id

5th: message\_id, message\_text, receiver\_id

**Membership:**

UNF: 1st: user\_id, user\_name, user\_dob, road\_name, road\_number, area, city, phone\_number, group\_id, group\_name, group\_type, opening\_date

1NF: 1st: user\_id, phone\_number, group\_id, user\_name, user\_dob, road\_name, road\_number, area, city, group\_name, group\_type, opening\_date

2NF: 1st: user\_id, phone\_number

2nd: user\_id, user\_name, user\_dob, road\_name, road\_number, area, city

3rd: user\_id, group\_id

4th: group\_id, group\_name, group\_type, opening\_date

3NF: 1st: user\_id, phone\_number

2nd: user\_id, user\_name, user\_dob, road\_number

3rd: road\_number, road\_name, area, city

4th: user\_id, group\_id

5th: group\_id, group\_name, group\_type, opening\_date

**Final Table:**

1st: user\_id, phone\_number

2nd: user\_id, user\_name, user\_dob, road\_number

3rd: road\_number, road\_name, area, city

4th: user\_id, friend\_id

5th: user\_id, message\_id

6th: message\_id, message\_text, receiver\_id

7th: user\_id, group\_id

8th: group\_id, group\_name, group\_type, opening\_date